

REMARKS/ARGUMENTS

Claims 1-2, 4-8, 10-12, 14-18, 20, and 22-25 were previously pending in the application. Claims 1-2, 5, 12, 14, 18, and 23 are amended; and new claims 26-39 are added herein. None of the claims have been amended to distinguish from any prior art. Assuming the entry of this amendment, claims 1-2, 4-8, 10-12, 14-18, 20, and 22-39 are now pending in the application. The Applicant hereby requests further examination and reconsideration of the application in view of the foregoing amendments and these remarks.

In paragraph one, the Examiner rejected claims 1-2, 4-8, 10-12, 14-18, 20, and 22-25 under 35 U.S.C. § 101 as allegedly directed to non-statutory subject matter. Applicant respectfully submits that all of the pending claims are directed to statutory subject matter.

Claim 1

Claim 1 has been amended to more clearly describe the method claimed, as well as its concrete, useful, and tangible result. Support for the amendments can be found in the originally filed Specification at page 2, line 24-page 3, line 2; page 3, lines 9-28; page 3, line 29-page 4, line 7; page 4, lines 12-15; page 4, lines 26-30; page 5, lines 1-30; page 6, lines 1-20; previously pending claim 12; and Fig. 1.

Applicant submits that amended claim 1 claims a computer-implemented method that produces a useful, concrete, and tangible result in that the method involves (i) taking a search object that is part of a data packet, (ii) using the search object and a decision tree structure to compare, one or more times, at least a portion of the search object to data in the decision tree structure, and (iii) retrieving an attribute associated with the data packet based on the one or more comparisons. The attribute can be, for example, a description, an instruction, an address, or an indication of presence or absence in the decision tree structure of a leaf that matches the search object. The retrieved attribute can then be used, recorded, and manipulated by the system implementing the claimed method.

In rejecting claim 1, the Examiner stated that “it is not clear what happened to the path if a terminal search node does not match the search object.” In a preferred embodiment, each path terminates in a leaf, and the decision tree structure comprises (i) a first type of path corresponding to a match of the search object, and (ii) a second type of path corresponding to a failure to match the search object. If the decision tree structure has a match for the search object, then the path is of the first type and terminates in a leaf. If the decision tree structure does not have a match for the search object, then the path is of the second type and also terminates in a leaf. As such, failure to match a search object in the decision tree structure is covered by currently amended claim 1.

For these reasons, Applicant respectfully submits that claim 1 is directed to allowable subject matter and is therefore allowable. Since claims 2, 4-8, 10-12, 14-17, and 26-30 depend variously from claim 1, it is submitted that those claims are also directed to allowable subject matter, and consequently, allowable.

Claim 2

Claim 2 has been amended for improved clarity and consistency with claim 1. Support for the amendment can be found in the originally filed Specification at page 2, lines 19-20; page 2, line 24-page 3, line 2; page 3, lines 9-16; page 3, line 29-page 4, line 7; and original claim 1.

Claim 5

Claim 5 has been amended for improved clarity and consistency with claim 1. Support for the amendment can be found in the originally filed Specification at page 3, lines 9-16; page 4, line 15; page 6, line 23-page 7, line 2; and page 7, line 21-page 8, line 2.

Claim 12

Claim 12 has been amended for improved clarity and consistency with claim 1. Support for the amendment can be found in the originally filed Specification at page 3, line 9-page 4, line 14.

Claim 14

Claim 14 has been amended for improved clarity and consistency with claim 1. Support for the amendment can be found in the originally filed Specification at page 3, lines 9-14; and page 3, line 29-page 4, line 7.

Claim 18

Claim 18 has been amended to more clearly describe the apparatus claimed, as well as the concrete, useful, and tangible result the claimed apparatus is adapted to provide. Support for the amendments can be found in the originally filed Specification at page 2, line 24-page 3, line 2; page 3, lines 9-28; page 3, line 29-page 4, line 7; page 4, lines 12-15; page 4, lines 26-30; page 5, lines 1-30; page 6, lines 1-20; previously pending claim 12; and Fig. 1.

Applicant submits that amended claim 18 claims an apparatus adapted to produce a useful, concrete, and tangible result. The claimed apparatus is adapted to retrieve an attribute associated with a data packet comprising a search object. The claimed apparatus comprises a first memory, a second memory, and a processor. The processor is adapted to retrieve the attribute using a decision tree structure having a first portion stored in the first memory and a second portion stored in the second memory. The retrieved attribute can then be used and manipulated by the processor or a connected device as desired.

In rejecting claim 18, the Examiner stated that “it is not clear what happened if a terminal search node is not reached and the terminal search node does not match at least a portion of the search object.” In a preferred embodiment, each path terminates in a leaf, and the decision tree structure comprises (i) a first type of path corresponding to a match of the search object, and (ii) a second type of path corresponding to a failure to match the search object. If the decision tree structure has a match for the search object, then the path is of the first type and terminates in a leaf. If the decision tree structure does not have a match for the search object, then the path is of the second type and also terminates in a leaf. As such, failure to match a search object in the decision tree structure is covered by currently amended claim 18.

For these reasons, Applicant respectfully submits that claim 18 is directed to allowable subject matter and is therefore allowable. Since claims 20 and 22 depend from claim 18, it is submitted that those claims are also directed to allowable subject matter, and consequently, allowable.

Claim 23

Claim 23 has been amended to more clearly describe the apparatus claimed, as well as the concrete, useful, and tangible result the claimed apparatus is adapted to provide. Support for the amendments can be found in the originally filed Specification at page 2, line 24-page 3, line 2; page 3, lines 9-28; page 3, line 29-page 4, line 7; page 4, lines 12-15; page 4, lines 26-30; page 5, lines 1-30; page 6, lines 1-20; previously pending claim 12; and Fig. 1.

Applicant submits that amended claim 23 claims an apparatus adapted to produce a useful, concrete, and tangible result. The claimed apparatus is adapted to retrieve an attribute associated with a data packet comprising a search object. The claimed apparatus comprises a first memory, a second memory, a first processor adapted to access the first memory, and a second processor adapted to access the second memory. The processors are adapted to retrieve the attribute using a decision tree structure having a first portion stored in the first memory and a second portion stored in the second memory. The retrieved attribute can then be used and manipulated by the processors or a connected device as desired.

In rejecting claim 23, the Examiner stated that “it is not clear what happened if a terminal search node is not reached and the terminal search node does not match at least a portion of the search object.” In a preferred embodiment, each path terminates in a leaf, and the decision tree structure comprises (i) a first type of path corresponding to a match of the search object, and (ii) a second type of path corresponding to a failure to match the search object. If the decision tree structure has a match for the search object, then the path is of the first type and terminates in a leaf. If the decision tree structure does not have a match for the search object, then the path is of the second type and also terminates in a leaf. As such, failure to match a search object in the decision tree structure is covered by currently amended claim 23.

For these reasons, Applicant respectfully submits that claim 23 is directed to allowable subject matter and is therefore allowable. Since claims 24 and 25 depend from claim 23, it is submitted that those claims are also directed to allowable subject matter, and consequently, allowable.

Claim 26

New claim 26 is directed to a particular type of attribute that may be retrieved by the method of claim 1, wherein the attribute is the presence or absence in the decision tree structure of a leaf that matches the search object. Support for new claim 26 can be found in the originally filed Specification at page 4, line 15-page 5, line 13.

Claim 27

New claim 27 is directed to the situation wherein there is no matching leaf in the decision tree structure for the search object and the retrieved attribute is absence of a matching leaf. Support for new claim 27 can be found in the originally filed Specification at page 4, line 15-page 5, line 13.

Claim 28

New claim 28 is directed to a particular type of attribute that may be retrieved by the method of claim 1, wherein the attribute is a classification for the data packet. Support for new claim 28 can be found in the originally filed Specification at page 5, line 18-page 6, line 20.

Claim 29

New claim 29 is directed to the method of claim 1, wherein for at least one current search node, there are a plurality of paths through the current search node. Support for new claim 29 can be found in the originally filed Specification at page 4, line 15-page 5, line 13; and Fig. 1.

Claim 30

New claim 30 is directed to the method of claim 1, wherein the decision tree structure comprises a first and a second type of path. Support for new claim 30 can be found in the originally filed Specification at page 4, line 15-page 5, line 13; page 6, lines 1-20; page 10, line 29-page 11, line 3; and Fig. 1.

Claim 31

New claim 31 is directed to an apparatus comprising a first memory, a second memory, and at least one processor. Support for new claim 31 can be found in the originally filed Specification at page 3, line 9-page 5, line 17; page 7, line 15-page 10, line 13; and Figs. 1-3.

Claim 32

New claim 32 is directed to the invention of claim 31, wherein the first portion of the decision tree structure comprises one or more lower levels of the decision tree structure, the second portion of the decision tree structure comprises one or more higher levels of the decision tree structure, and the first memory access time is less than the second memory access time. Support for new claim 32 can be found in the originally filed Specification at page 7, lines 15-29.

Claim 33

New claim 33 is directed to the invention of claim 31, further comprising a third memory and wherein the at least one processor comprises (i) a first processor adapted to traverse (1) a first part of the first search path by accessing the first memory to identify the first part of a first specified search object and (2) a second part of the first search path by accessing the second memory to identify the second part of the first specified search object, and (ii) a second processor adapted to traverse (1) a first part of a second search path by accessing the third memory to identify the first part of the second specified search object and (2) a second part of the second search path by accessing the second memory to identify the second part of the second specified search object. Support for new claim 33 can be found in the originally filed Specification at page 8, lines 14-25; and Fig. 3.

Claim 34

New claim 34 is directed to the invention of claim 33, wherein (i) the first processor and the first memory are implemented on a first integrated circuit, (ii) the second processor and the third memory are implemented on a second integrated circuit, and (iii) the second memory is not part of either the first or second integrated circuit. Support for new claim 34 can be found in the originally filed Specification at page 8, lines 14-25; and Fig. 3.

Claim 35

New claim 35 is directed to the invention of claim 31, wherein the at least one processor comprises (i) a first processor adapted to traverse the first part of the search path by accessing the first memory to identify the first part of the specified search object, and (ii) a second processor adapted to traverse the second part of the search path by accessing the second memory to identify the second part of the specified search object. Support for new claim 35 can be found in the originally filed Specification at page 8, line 26-page 9, line 2; and Fig. 4.

Claim 36

New claim 36 is directed to the invention of claim 35, wherein, after traversing the first part of the search path, the first processor passes control to the second processor to traverse the second part of the search path. Support for new claim 35 can be found in the originally filed Specification at page 8, line 26-page 9, line 2; and Fig. 4.

Claim 37

New claim 37 is directed to the invention of claim 35, wherein the first processor and the first memory are implemented on a single integrated circuit. Support for new claim 37 can be found in the originally filed Specification at page 9, lines 10-13; and Figs. 4-5.

Claim 38

New claim 38 is directed to the invention of claim 31, wherein the at least one processor comprises a first processor adapted to access simultaneously (1) the first portion of the decision tree structure in the first memory and (2) the second portion of the decision tree structure in the second memory. Support for new claim 38 can be found in the originally filed Specification at page 9, lines 3-25; and Figs. 2 and 5.

Claim 39

New claim 39 is directed to the invention of claim 31, wherein (i) the at least one processor comprises a first processor implemented on a first integrated circuit together with the first memory, and (ii) the second memory is not part of the first integrated circuit. Support for new claim 39 can be found in the originally filed Specification at page 9, lines 10-25; and Fig. 5.

In view of the above amendments and remarks, the Applicant believes that the now pending claims are in condition for allowance. Therefore, the Applicant believes that the entire application is now in condition for allowance, and early and favorable action is respectfully solicited.

Respectfully submitted,

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